E. W. Pfeiffer and Harold Braun believe aplodontia rufa may hold keys to understanding kidney disease

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MISSOULA, SEPT. 11 -- A living fossil with a name that sounds like "apples on the roof" has gone into the service of mankind at Montana State University.

Aplodontia rufa, a small mammal that exists only in the Northwest, probably should have passed out of existence in the age of fossils. But somehow he managed to survive, and that's a happy fact for Dr. E. W. Pfeiffer, MSU Zoologist, and Dr. Harold Braun, Chairman of the MSU Kidney Research Fund, who believe that aplodontia rufa may hold one of the keys to kidney disease in human beings. This week, the Kidney Research Fund at MSU received a $900 grant from the Western Montana Clinic Foundation so that Drs. Pfeiffer and Braun could pursue one fascinating fact about the little creature -- without a tremendous amount of fresh drinking water, he can't survive.

Why?

If doctors knew that answer, they might know what it is about human kidneys that allow them to conserve water when it is needed, and get rid of it when it is not. This week, three members of the aplodontia rufa tribe were frisking happily about their cages at MSU, waiting to help Dr. Pfeiffer find out. They will be joined by more members of their rare breed, a species that lives only in the Northwest, out of all the world, and a species that is absolutely dependent on plenty of water, and plenty of succulent food in order to exist.

The probability is good that many woodsmen in the Northwest are
acquainted with Dr. Pfeiffer's lab animal, although not by that name. Aplodontia rufa looks something like an undersized woodchuck, and his common name is Mountain Beaver. He's not a beaver, and not even remotely related to a beaver, but he does live in mountain areas where there is plenty of fresh water, and that's probably why the Indians associated him with the North American beaver. It is also a fact that they thought well enough of A. rufa's pelt to stitch it into robes, as reported by Lewis and Clark.

But as for the mountain beaver's part in the MSU research program, it is hoped that Drs. Pfeiffer and Braun may find out what kind of mechanism is necessary to permit a kidney to conserve water. The grant will help pay for a new electronic device, the Fiske osmometer, which will be one of the important research instruments in the program. First of its kind in the state, the Fiske osmometer is used to determine the amount of materials in body fluids. According to Dr. Pfeiffer, the device delivers extremely precise test results in a matter of minutes in comparison with older methods requiring two hours or more. Like the university's artificial kidney, the osmometer is a multiple purpose instrument. It will not only be used for zoology department research, but will also be available for clinical use by Missoula physicians, by the MSU chemistry department and in the teaching of physiology courses.

The program is a part of an expanding schedule of research on kidney and cardiovascular functions in the human body now being undertaken at MSU, with the assistance of the Kidney Research Fund and with the cooperation and support of Western Montana doctors. A little over two years ago, the doctors got together with some of their former patients and helped
MSU buy an artificial kidney through the agency of the MSU Endowment Foundation. Quoting Dr. Harold Braun, Chairman of the Kidney Research Fund, "The artificial kidney is in nowise a complete substitute for the human kind, but it can be a lifesaver within its limits." Normally, the MSU School of Pharmacy is custodian of the device, which is held for MSU research and for any hospital in the area.

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